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Globalization and interdependence: science and technology for development

Science and technology for development

Report of the Secretary-General

Summary

The present report contains information on the status of implementation of General Assembly resolution 62/201. It reports on work carried out by the United Nations Commission on Science and Technology for Development in areas such as agriculture, rural development, information communications technologies and environmental management. It also provides information on activities carried out by the United Nations Conference on Trade and Development and other relevant organizations to assist developing countries in their efforts to integrate science, technology and innovation policies in their respective national development plans and strategies.

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I. Introduction

1. At its sixty-second session, the General Assembly adopted resolution 62/201 on science and technology for development, in which it reaffirmed its commitment to assist developing countries in harnessing science and technology for development. In this context, the Assembly also reaffirmed its commitment to support initiatives for a number of science and technology-related issues, including: research and development in the areas of health, agriculture, conservation, sustainable use of natural resources and environmental management, energy, forestry and the impact of climate change; transfer and diffusion of technologies; development of renewable sources of energy, such as solar, wind and geothermal energy; policies that attract both public and private investment, domestic and foreign, that enhances knowledge; and new agricultural technologies in order to increase agricultural productivity through environmentally sustainable means.

2. In the same resolution, the General Assembly requested the Commission on Science and Technology for Development to continue to assist the Economic and Social Council in the system-wide follow-up to the outcomes of the World Summit on the Information Society. In the resolution, the Assembly encouraged the Commission to address the special needs of developing countries in areas such as agriculture, rural development, information and communications technologies and environmental management. The Assembly also encouraged the United Nations Conference on Trade and Development (UNCTAD), in collaboration with relevant partners, to continue to undertake science, technology and innovation policy reviews, and to assist developing countries in their efforts to integrate science, technology and innovation polices in national development strategies. Further, it requested the Secretary-General to submit to it at its sixty-fourth session a report on the implementation of the resolution and recommendations for future follow-up, including lessons learned in integrating science, technology and innovation policies into national development strategies.

3. The present report has been prepared in response to those requests.

II. Work of the Commission on Science and Technology for Development in areas such as agriculture, rural development, information and communications technologies and environmental management

4. The Commission reasserted its unique role as an intergovernmental global forum for the examination of science and technology questions, for improving the understanding of science and technology policies for development and for the formulation of recommendations and guidelines on science and technology matters within the United Nations system. In addition, the Commission continued to fulfil its mandate of assisting the Economic and Social Council in the follow-up to the World Summit on the Information Society and the commitment set out in paragraph 60 of the 2005 World Summit Outcome.

5. The secretariat of the Commission undertook a number of initiatives that address the special needs of developing countries in areas such as agriculture, rural development, information and communications technologies and environmental

management, through projects undertaken by the United Nations Conference on Trade and Development (UNCTAD).

A. Multi-year expert meeting of the United Nations Conference on Trade and Development

6. The first session of the UNCTAD multi-year expert meeting on enterprise development policies and capacity-building in science, technology and innovation was held from 20 to 22 January 2009 in Geneva, Switzerland. The meeting provided an opportunity to discuss how innovation and entrepreneurship can help developing countries overcome global challenges, such as climate change, energy and food security. Experts shared ideas on how to apply science, technology and innovation to development, in particular how to fight poverty through improving the level of productivity and competitiveness of enterprises in developing countries.

7. Given that the bulk of poverty in the developing world is in rural areas, agriculture remains a key channel for many developing countries to reduce poverty. Experts have argued that building innovation capabilities in agriculture in developing countries would be an important step towards reducing poverty. Since the agriculture sector in developing countries generally consists of very large numbers of microentrepreneurs, it would be useful to provide accessible technologies that farmers could use to solve their particular problems. In order to build innovation capabilities, it was suggested that the traditional research- and technology-led approach to innovation in agriculture should be substituted by a new innovation paradigm that recognized diversity in the innovation arrangements of developing countries. There is a need for agricultural research to be better suited to the needs of entrepreneurs and enterprises, with the support of agricultural technology brokers and agricultural extension services.

8. Several policy questions remained open, including how to best foster entrepreneurship for agricultural innovation in a largely informal sector of microentrepreneurs. Another important policy question that remained open concerned identifying what models of farmer-operated enterprises worked well, especially for poverty reduction. It was suggested that policymakers strengthen their intelligence-gathering capacities to better understand promising developments in the informal sector, and in agriculture and rural development more generally.

9. Several national programmes on science, technology and innovation development for microenterprises were discussed. Experts cautioned against concentrating too heavily on high technology to the neglect of more basic technologies that were nevertheless critical for economic progress in developing countries. Agroprocessing technologies, which were central to raising the value added by agricultural entrepreneurs and for escaping the poverty trap, were used as an illustration.

10. On pro-poor information and communications technologies, it was acknowledged that mobile telephone technology in some developing countries, such as Bangladesh and Kenya, could have a big impact in facilitating business operations by microenterprises and microentrepreneurs in agriculture and fisheries. Such pro-poor applications could open new opportunities for microentrepreneurs by providing information networking platforms. This type of mobile telephone-based network might be replicable in other developing countries, although the specific

conditions varied greatly by country, which would place limits on its general replicability.

B. Conference on global food security: the role of science and technology

11. UNCTAD and the Malaysian Ministry of Science, Technology and Innovation organized a conference on the theme "Global food security: the role of science and technology" in February 2009 in Kota Kinabalu, Malaysia. The conference was attended by more than 200 agriculture professionals, researchers, policymakers, industry representatives, non-governmental organizations and academics from within the country, as well as several member States of the Commission and representatives from countries in the Association of Southeast Asian Nations region.

12. The conference discussions focused on the short-term and long-term action plans to be implemented in addressing the food crisis through science and technology. It examined whether the issue of the food crisis could be resolved by way of science and technology policies, with a particular focus on agro-based economic activities.

13. The conference called for continued investment and research efforts in developing and sharing new technologies and technological solutions in the agriculture sector. The conference welcomed the development of new irrigation technologies that could render increased rice productivity and benefit small-scale farmers. One proposal also sought to examine innovative technological solutions that would allow small-scale farmers to collaborate with large corporations and companies. Another proposal called for advancing the current research on the genetic manipulation of seeds, since high-quality seed is an important element for improving productivity and the quality of agriculture. The conference also called on the agriculture sector to adopt wider use of information and communications technologies. New information and communications technologies, such as the global positioning system, are particularly relevant for land utilization monitoring systems and land use mapping and analysis.

C. Technology and innovation report 2009

14. The UNCTAD technology and innovation report, scheduled to be launched in November 2009, examines the role of science, technology and innovation in addressing agricultural productivity and food security issues in developing countries. The report investigates ways and means to reverse the current trend of declining agricultural productivity in many developing countries. These include the adoption of existing technologies and the development of new ones; innovation in agricultural systems (technology and non-technology based); improved agricultural infrastructure; and improved services and land management practices and related national policies. It draws upon lessons learned from the Asian "green revolution" and proposes policy options that developing countries and the wider international community could consider in order to achieve higher agricultural productivity in developing countries, in particular in sub-Saharan Africa. Within this context, the analysis addresses, inter alia, the international transfer of technology; international trade; and farm-level diffusion of agricultural inputs and technologies. It also

examines how the transfer and farm-level diffusion of agricultural technologies may be affected by intellectual property provisions. It emphasizes the building of an enabling environment to utilize technologies and inventions, including the role and examples of South-South and South-South triangular cooperation.

D. Policy forum on information and communications technologies "Tunis +3: broadband, industry of content for development"

15. The Government of Tunisia, in collaboration with UNCTAD and the International Telecommunication Union, and in partnership with the Global Alliance for Information and Communications Technology and Development and the African Development Bank, organized the third Information and Communications Technology for All Forum, "Tunis+3: broadband, industry of content for development", held in Hammamet, Tunisia, in November 2008. The Forum addressed strategies and options to expand access among low-income countries to low-cost fixed or wireless broadband technology. It provided an opportunity to feature some recent broadband initiatives targeting low-income countries and to share national experiences relevant to the deployment of broadband. The Forum was attended by close to 1,500 participants, representing more than 60 countries.

16. The ministerial session of the Forum focused on national strategies for the development of broadband and digital content and enabled participants to share their experiences in providing broadband services and digital content at the policymaking level. It was generally acknowledged by participants that the emphasis should be to continue efforts to: (a) build information and communications technology infrastructure, through integrating innovative technologies to accelerate the development of networks and applications; and (b) remedy the weaknesses in the dissemination of e-culture at the broader layers of the population.

17. Through panels, the Forum addressed a spectrum of issues concerning broadband and digital content. One panel examined ultra high-speed broadband for business and investment promotion, in particular in the case of Africa, arguing that the continent should have opportunities that would enable it to connect and use the existing infrastructure and services to create its own solutions. Participants also highlighted noteworthy success stories achieved by mobile telephony in Africa, highlighting innovative business models that led to their success. Furthermore, many of the participating international and regional organizations presented their information and communications technology for development projects and initiatives in the African region to the forum.

E. Network of Centres of Excellence

18. The Commission continued to collaborate with UNCTAD on the Network of Centres of Excellence project (www.unctad.org/noce). The project is executed through a group of scientific and technological institutions in developing countries, selected for their competence and state-of-the-art facilities. With these as regional hubs for learning and training, the Network organizes long- and short-term training courses and workshops on science and technology applications for scientists and engineers from developing countries, in particular from Africa. The courses enable the scientists and engineers to update their professional expertise in modern

scientific environment. They also strengthen professional linkages within the scientific community and facilitate the mobility of science and technology professionals.

19. Three training sessions were organized in 2008, one in Tunisia and two in Egypt. The first francophone session of the Network was held in Tunisia, in collaboration with the National Agency for Computer Security, which is the only certified computer emergency response team in Africa, with the participation of 15 engineers from francophone African countries. The Network partner agency in Egypt is the Agricultural Genetic Engineering Research Institute in Giza. The two trainings sessions held in Egypt, one on "Molecular marker techniques and fingerprinting" and the other on "Biosafety and genetically modified organism detection", were each attended by 20 scientists from African countries.

20. The Network benefits from a large audience in the developing world's scientific community and a database of over 400 scientists, researchers and contacts in the academic world. The demand for the training courses has been very high, despite the fact that some of these are on specialized areas. For example, the training course on cybersecurity received over 100 applications for 15 openings. In total, about 600 applications were received for 133 openings.

III. Work of the United Nations Conference on Trade and Development in the area of science, technology and innovation policies

21. The work of UNCTAD in the area of science, technology and innovation policies has been primarily carried out through its science, technology and innovative policy reviews.

22. The main objective of the reviews is to help Governments ensure that their science, technology and innovation programmes become instruments for: supporting relevant components of the national development agenda; helping local industry compete in a knowledge-based, global economy; generating better paying jobs; increasing standards of living; reducing poverty; and stimulating economic growth.

23. The reviews are demand-driven technical assistance projects that assist developing countries in science, technology and innovation policymaking by reviewing the strengths and weaknesses of their existing science, technology and innovation capabilities, their innovation systems, their policy frameworks and the challenges they face in selected industries or issue areas. They provide information-based policy recommendations formulated to address their specific circumstances and the challenges that they face in harnessing the potential of science, technology and innovation to solve problems and promote economic and social development. The reviews are based on information and data collected from desk and online research, in-country evaluation missions, discussions with policymakers and consultations with a wide spectrum of stakeholders from both public and private sectors, as well as important development partners, non-governmental organizations and national counterparts in the country.

24. Reviews have been completed for Angola, Colombia, Ethiopia, the Islamic Republic of Iran and Jamaica. Other reviews for Ghana, Lesotho and Mauritania are currently being finalized. A memorandum of understanding was signed between the

Government of Iraq and UNCTAD in September 2008 to include a review of Iraq as a component of a wider UNCTAD programme of support to the country. Reviews will soon be started for the Dominican Republic, El Salvador and Peru, under a development account project for reviews in Latin America and the Caribbean.

25. Several lessons can be drawn from recent experience in producing the reviews. A high degree of participation by national counterparts, policymakers and other key stakeholders in the country in the preparation of the review promotes a more useful final document. The reviews can be particularly useful when they feed and are integrated into locally driven processes. Ideally, a review should be part of the initial process of evaluating and revising national science, technology and innovation policies, and not the end of the process. To be most effective, there needs to be adequate awareness of the role that science, technology and innovation can play in promoting economic and social development, among key policymakers, educational institutions, the private sector and the wider public. Awareness-raising may be needed in some countries but not in others. As coherent policymaking is essential to strengthening science, technology and innovation capabilities and harnessing technologies for local use, and because science, technology and innovation policymaking cuts across Government departments, it may be advisable for policies to be reviewed, revised and developed with inter-ministerial representation via a coordination mechanism. Finally, political support and leadership at the highest levels can be instrumental to the process, especially where cohesive inter-ministerial cooperation is difficult to achieve.